

Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 2 of 30 WebGuard Data Repositories mathematical signature compared On a time interval chosen by user, to version on file with WebGuard File registered with WebGuard If AutoRestore selected, copy WebGuard version of the file file is downloaded and back to client server Store changed file Generate alerts ž (see slide) (see slide) match? Figure 2: Simple Remote Process Overview 30 31 33 27 29 HTTP. HTTPS. HTTP. HTTP. 26 F 25 Client Server

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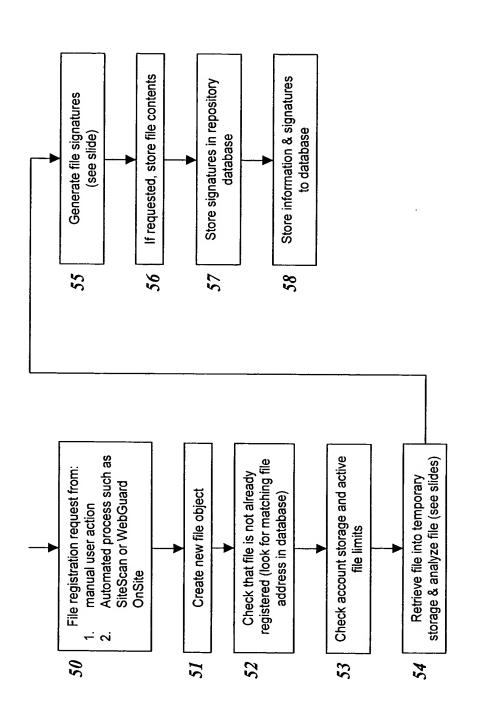
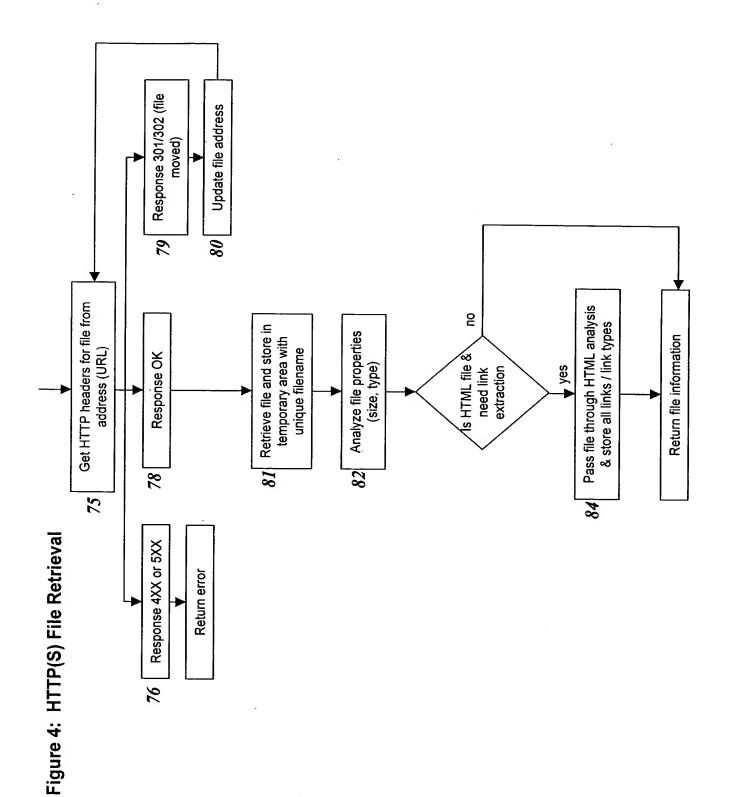
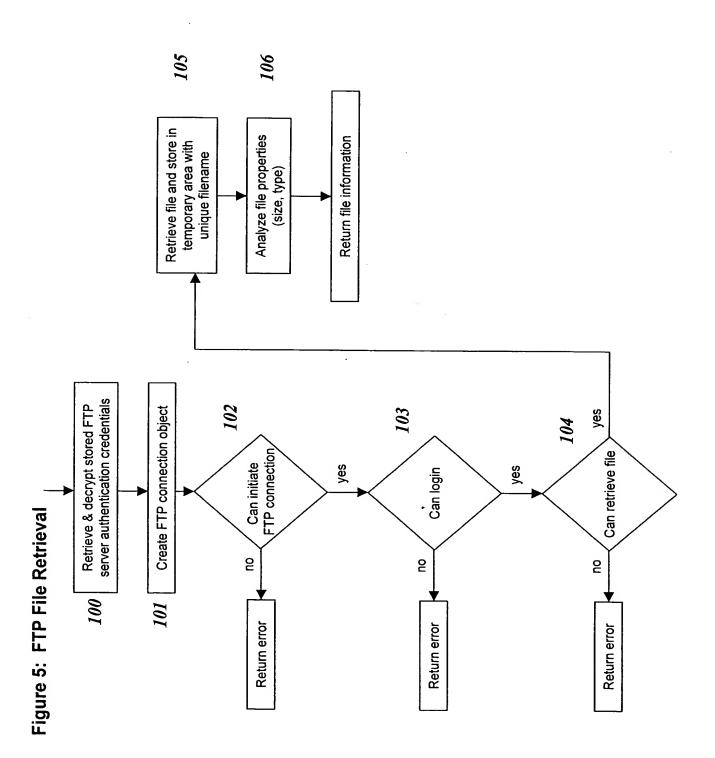


Figure 3: File Registration

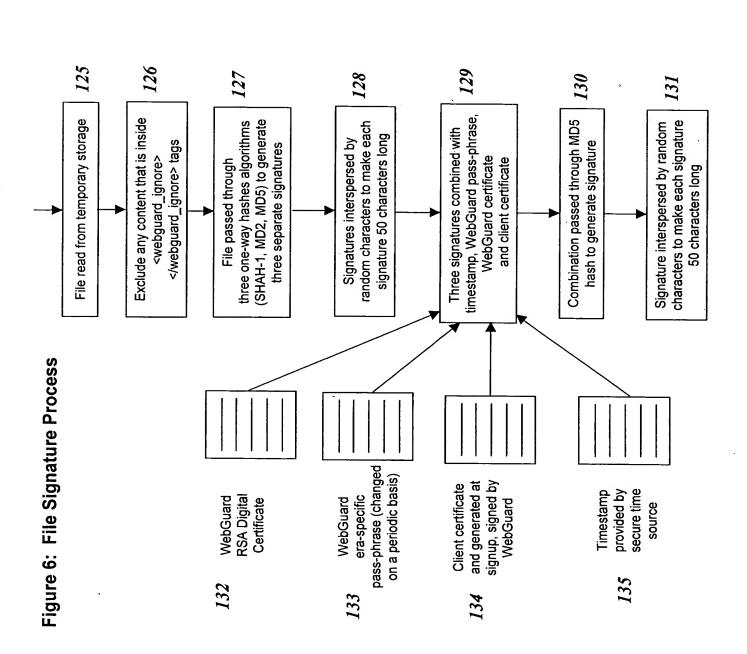
Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 4 of 30



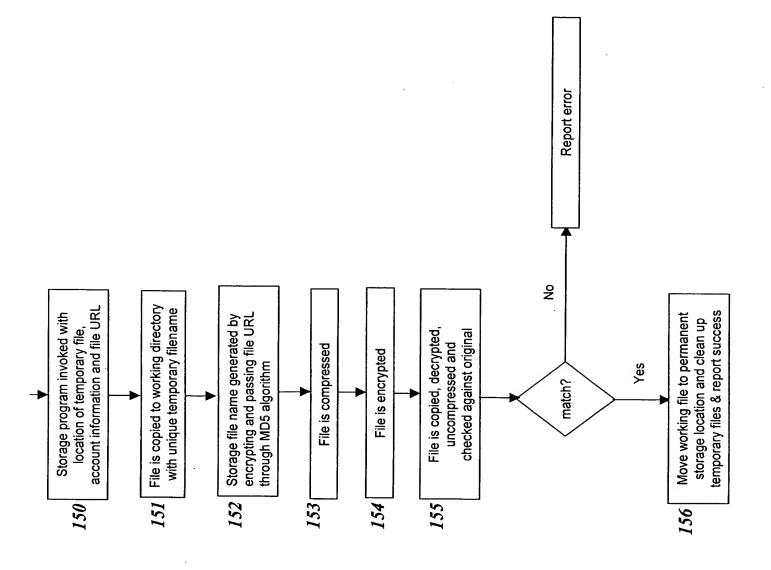
Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 5 of 30

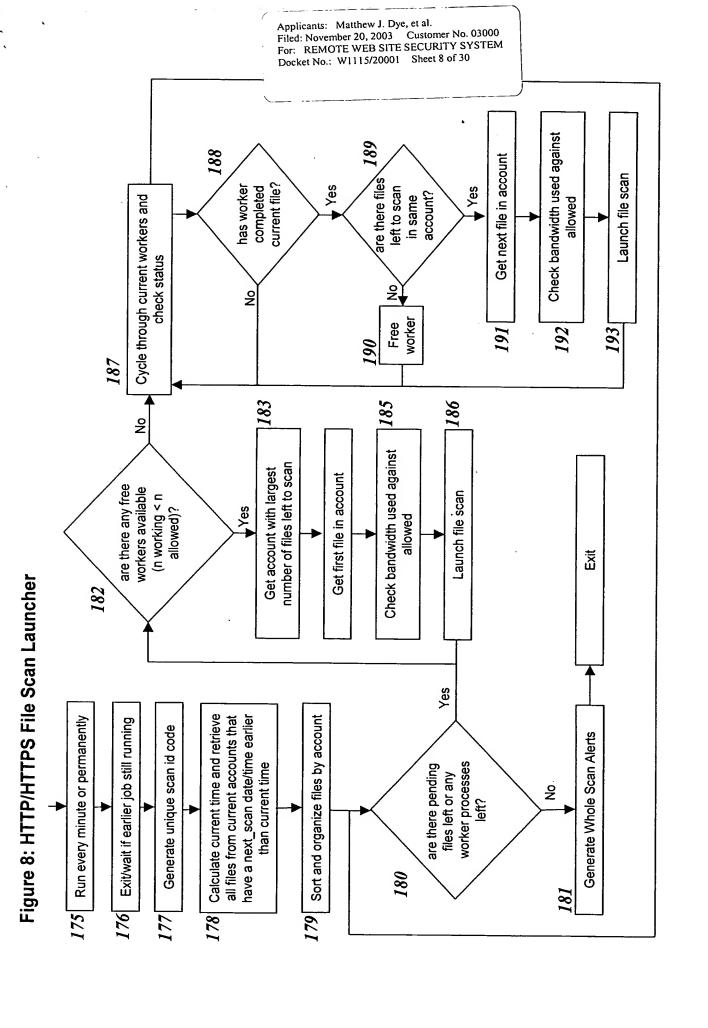


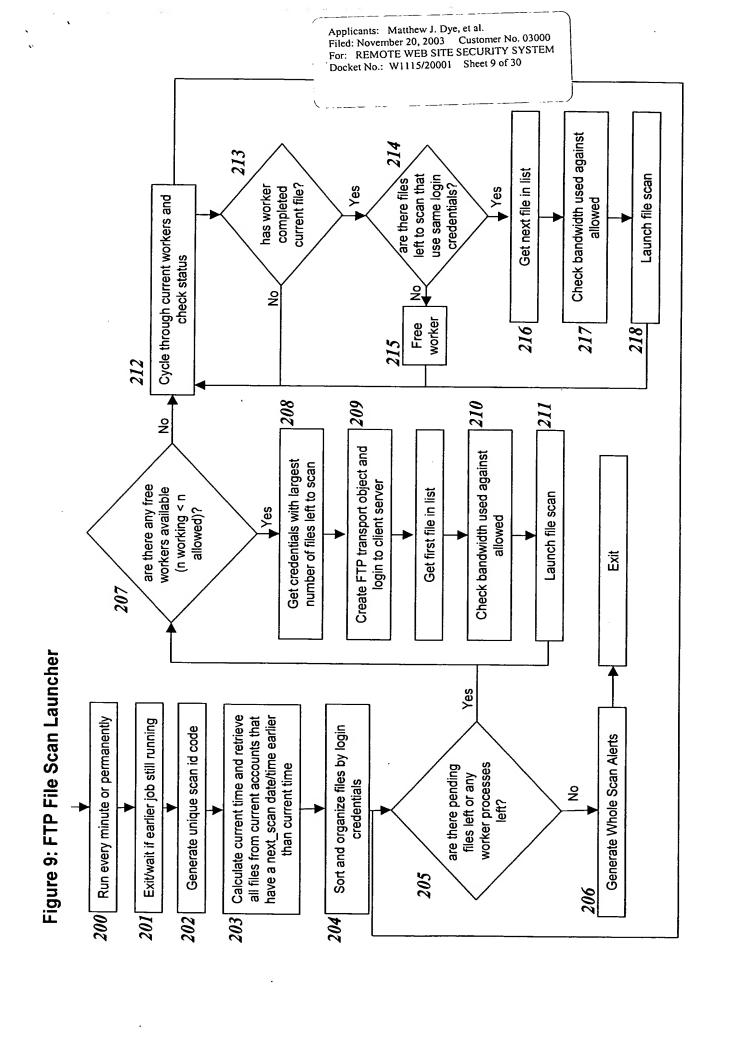
Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 6 of 30



Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 7 of 30







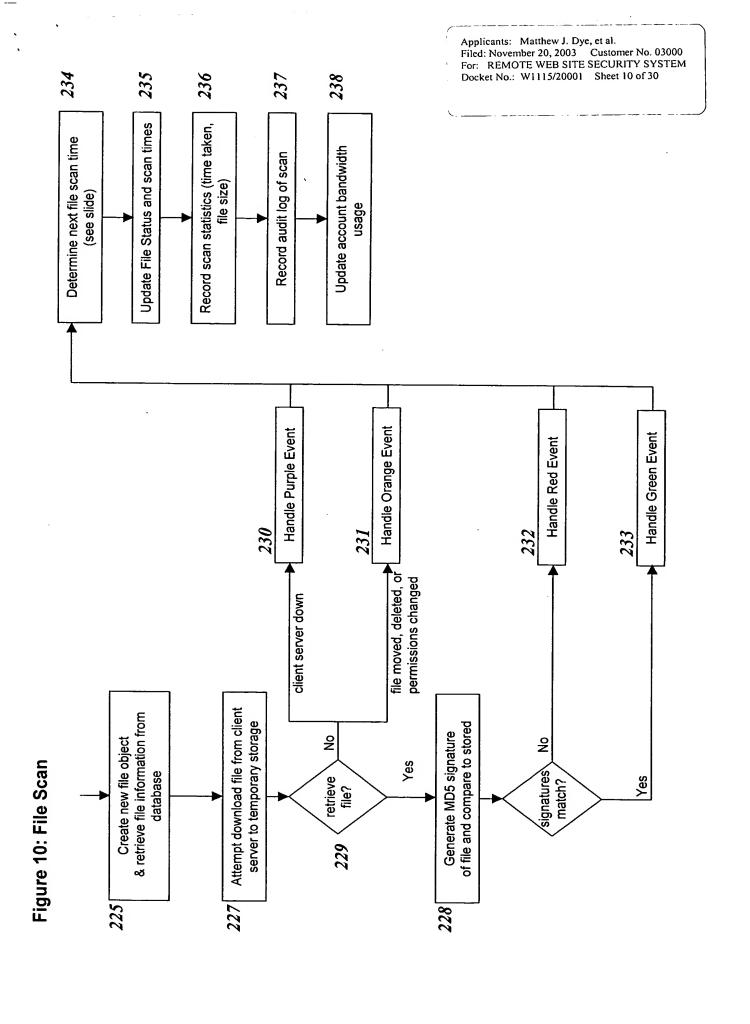


Figure 11: Determining Next File Scan Time

· WebGuard allows users to choose the scan interval (e.g. every 30 minutes, 1 day, 12 hours) for each file but does not allow users to choose the time of day that each file is scanned. WebGuard reserves the right to assign those times in order to ensure efficient bandwidth usage.

allows WebGuard to spread bandwidth usage and prevents creep in scan times if the file takes longer than anticipated to scan. i.e. if we simply Each file is assigned a 'base time', which is a number of minutes past midnight. The next scan time is then calculated from the base time and the scan interval. i.e. if the base time is 30 minutes and the scan interval is 60 minutes, scans will happen at 12:30, 1:30, 2:30, 3:30 etc. This used the scan interval without the base time, we could be running scans at 12:30, 1:31, 2:32, 3:33 etc.

Times are calculated in Unix time (seconds since January 1st 1970 00:00:00)

Step 1 - determine base_time_today for this file's base time

Applicants: Matthew J. Dye, et al.

REMOTE WEB SITE SECURITY SYSTEM

Filed: November 20, 2003

Docket No.: W1115/20001

Customer No. 03000

Sheet 11 of 30

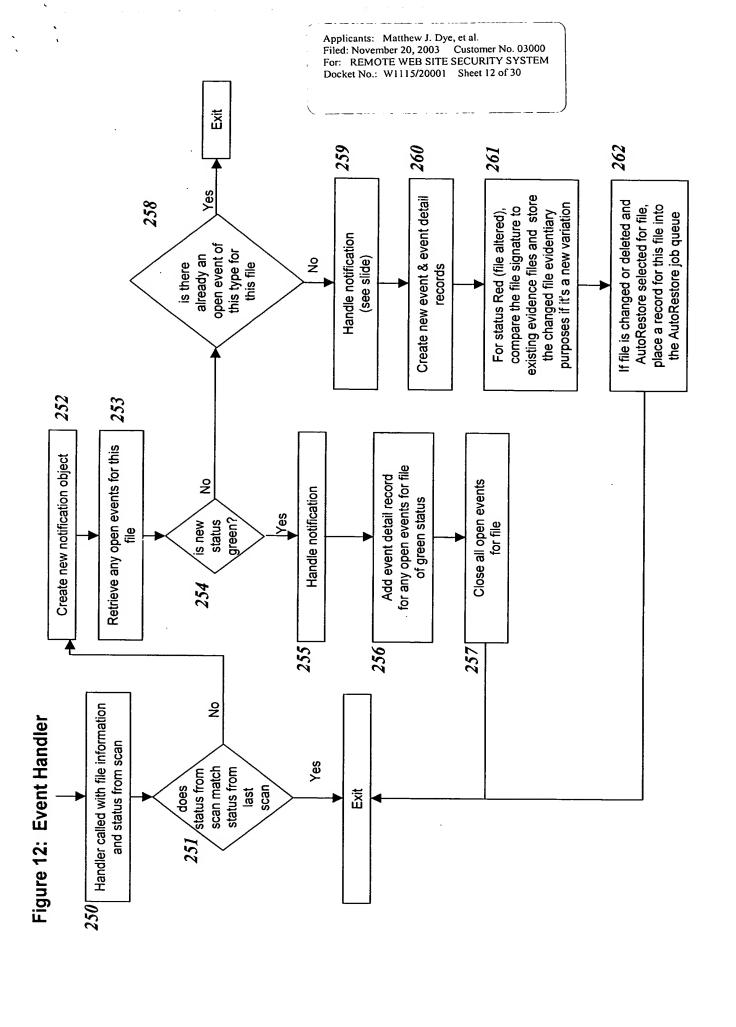
base_time_today = time_at_last_midnight + base_time_in_seconds

time_at_last_midnight is the time in seconds at midnight preceding the start of the scan base_time_in_seconds is the base time for the file in seconds after midnight

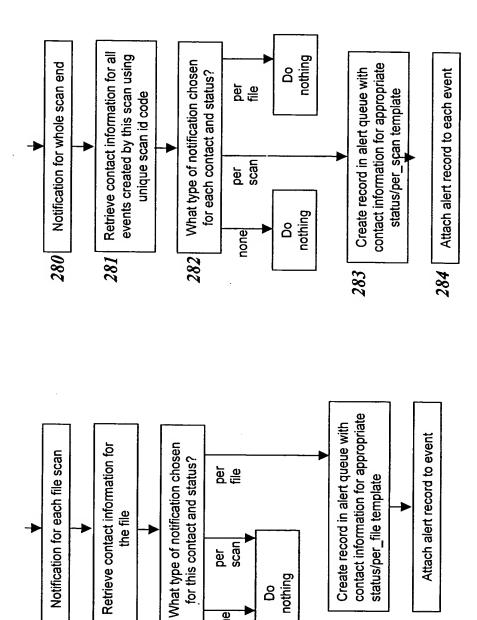
Step 2 – determine the next scan time in Unix time

next scan time = base_time_today + ((integer (scan_start_time - base_time_today / scan_interval_in_seconds) + 1) * scan_interval_in_seconds

scan_start_time is the start of the scan in Unix time scan_interval_in_seconds is the scan interval chosen by the user in seconds



Filed: November 20, 2003 Customer No. 03000 For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 13 of 30



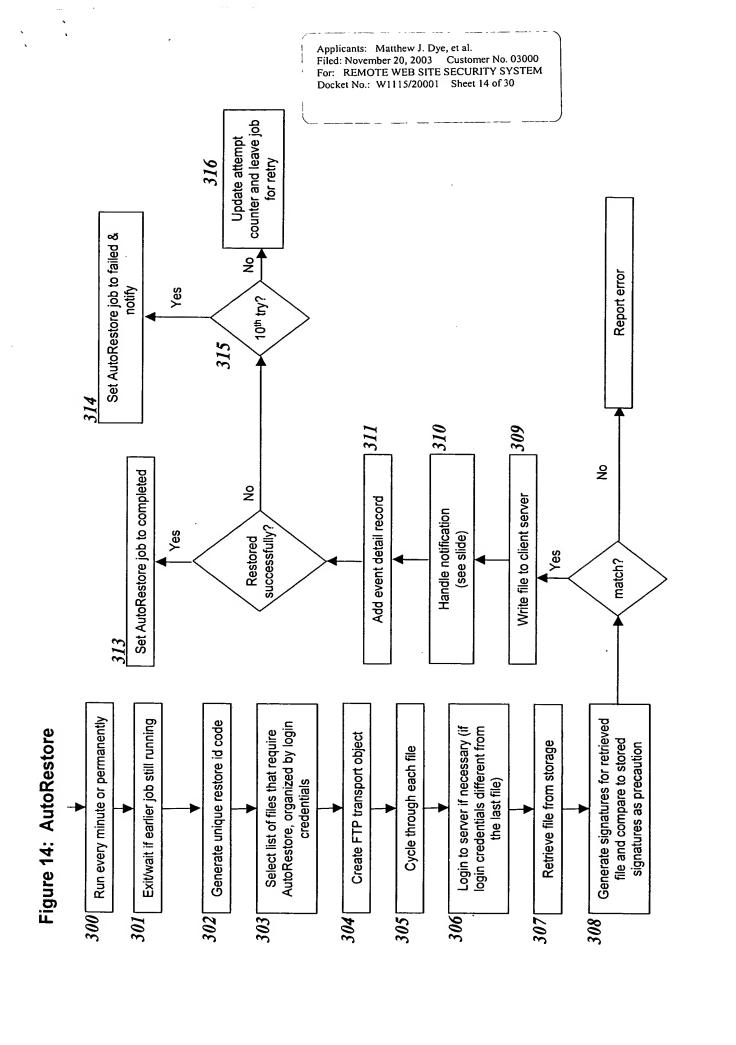
none

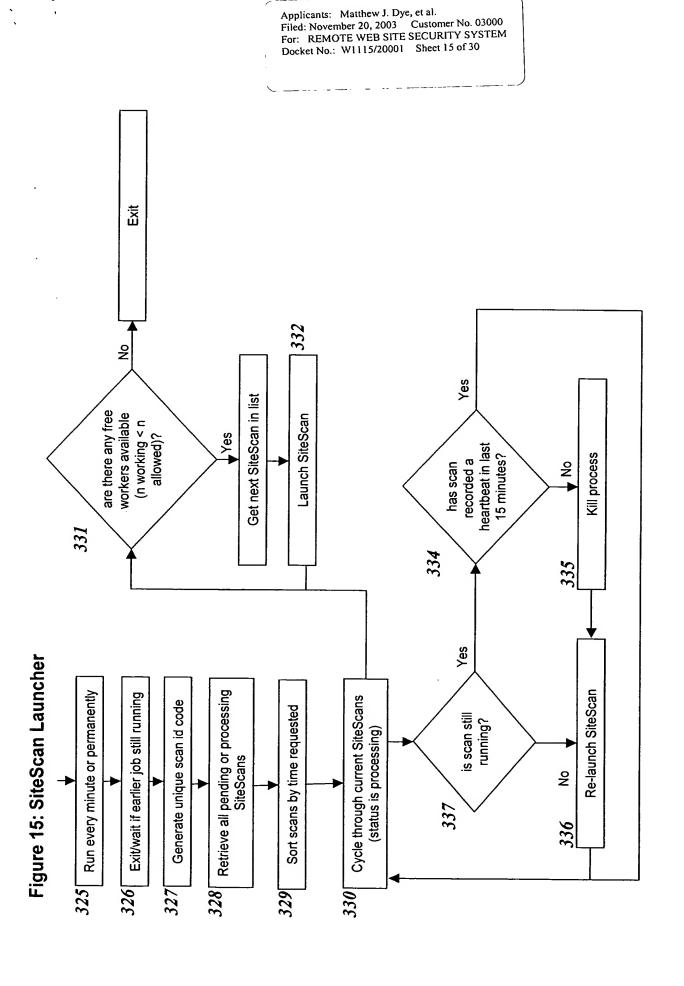
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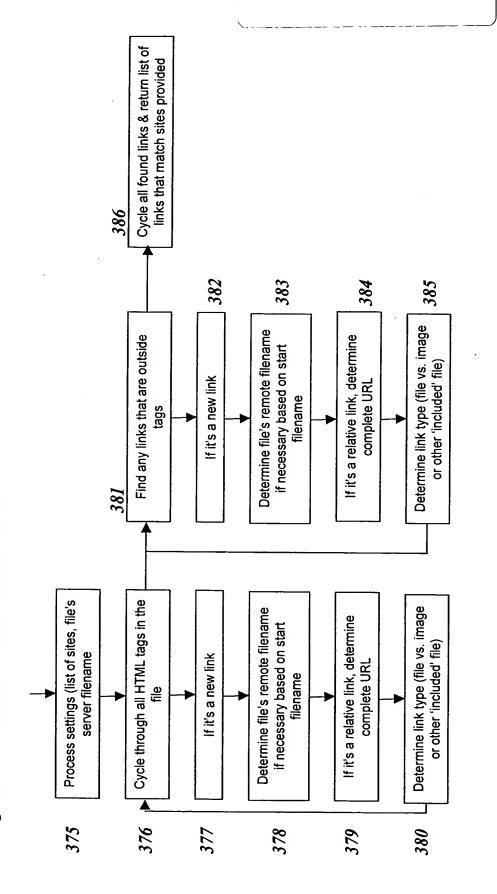
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Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 16 of 30 358 359 360 362 361 Yes Check storage limits and exit and g Put file into queue if it's a new file Register file if it's a new file (not Retrieve URL's from file Cycle through each URL report if limits reached previously registered) been processed already in this scan? based on inclusion/ Update heartbeat process this file Download file ဍ has this file (Figure 17) should we exclusion lists? Yes 365 364 366 355 357 353 354 Yes Put initial address into file queue Set SiteScan status to complete Make regular expressions out to Processing and increment of inclusion/exclusion lists Update SiteScan status and report statistics attempt counter files in the file queue left to are there process? g 356 Figure 16: HTTP/HTTPS SiteScan Set SiteScan status to complete and report unable to complete, ટ Retrieve SiteScan settings too many attempts Yes is this the 6th attempt? 350 352

Figure 17: Process a File to Extract URL's

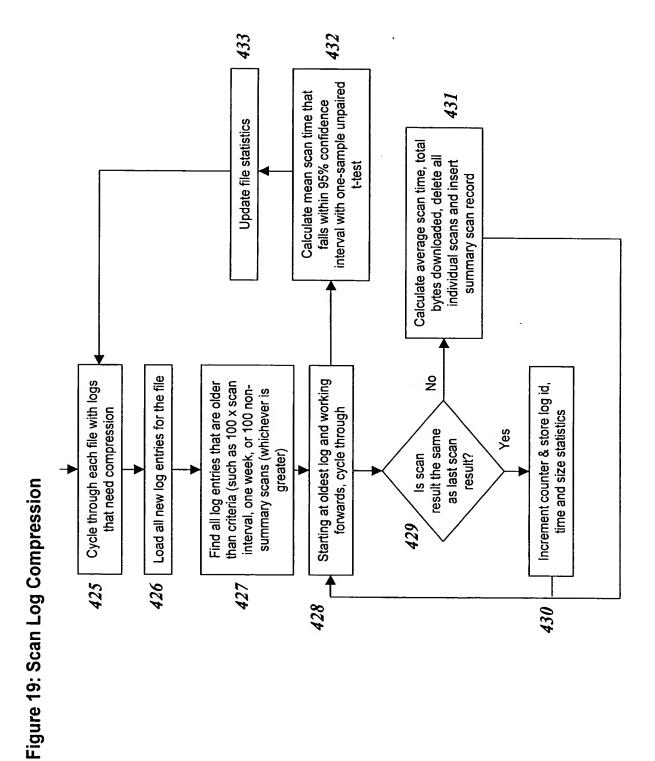


Filed: November 20, 2003 Customer No. 03000 For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 17 of 30

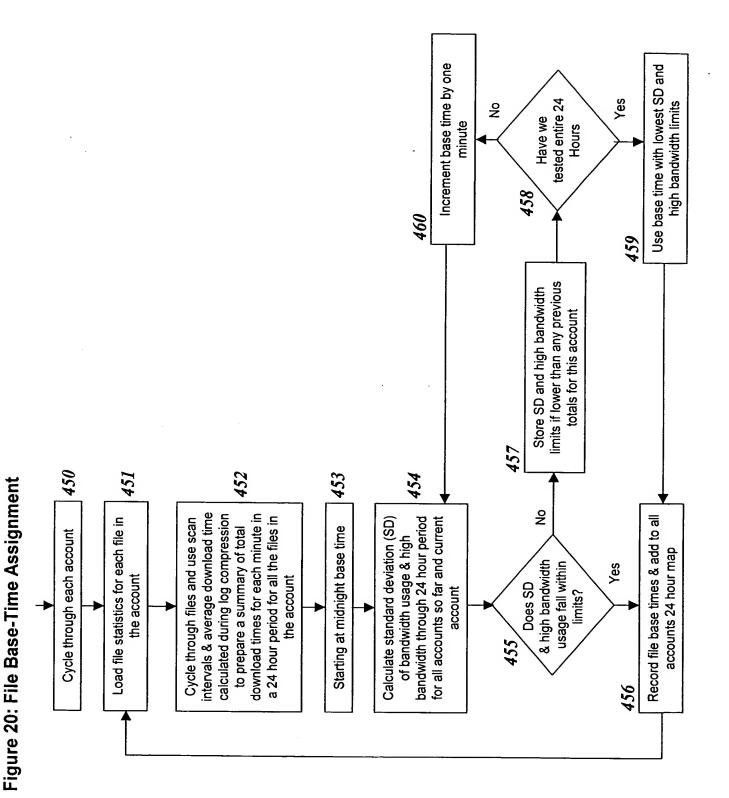
Customer No. 03000

Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 18 of 30 407 408 directory based on Put directory into directory process this should we Yes exclusion inclusion/ anenb Retrieve directory listing Process directory listing lists? Update hearbeat and report if limits reached Check storage Register file if (not previously it's a new file limits and exit registered) 404 402 403 Yes connect. Exit and report if unable Set SiteScan status to complete Put initial directory into queue to Processing and increment Make new FTP object and Update SiteScan status to make connection and report statistics attempt counter directories left to process? are there ટ 405 Set SiteScan status to complete Figure 18: FTP SiteScan ટ્ટ and report unable to complete, Retrieve SiteScan settings too many attempts Yes attempt? is this the 6th 400

For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 19 of 30



Applicants: Matthew J. Dye, et al. Filed: November 20, 2003 Customer No. 03000 For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 20 of 30



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Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM

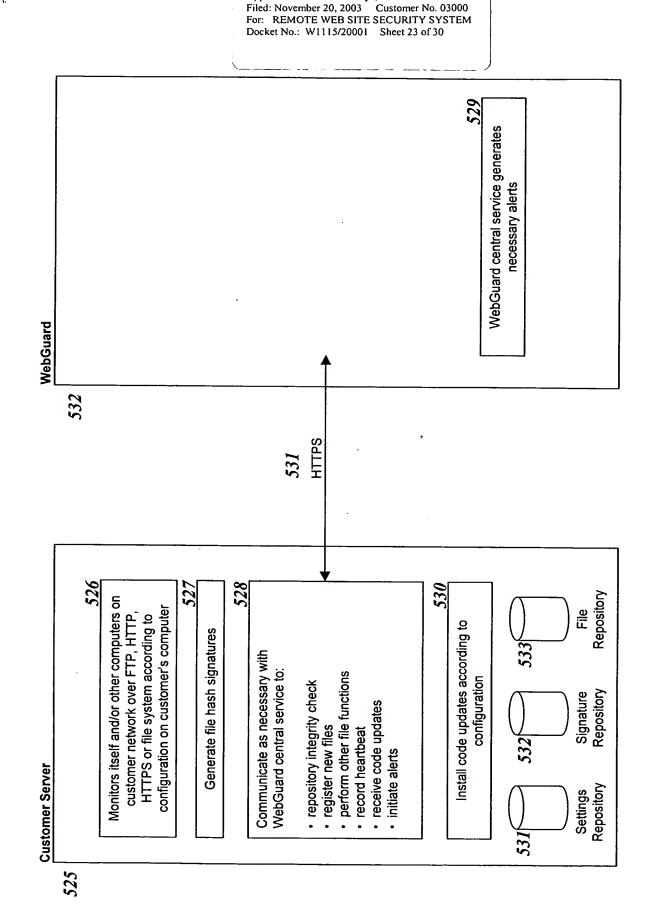
Docket No.: W1115/20001 Sheet 21 of 30

Figure 21: XML Bridge (using XML-RPC Spec)

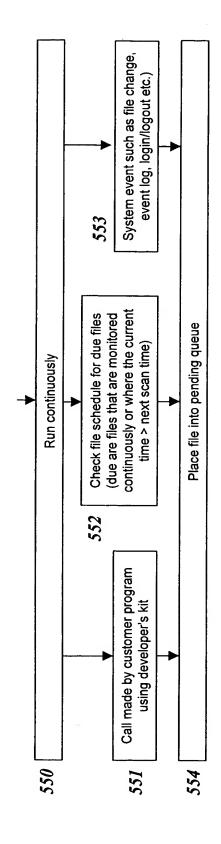
Applicants: Matthew J. Dye, et al.
Filèd: November 20, 2003 Customer No. 03000
För: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 22 of 30

WenbualdInsures Tour Lotal	rour Lotal Website integrity IM - Microsoft Internet Explorer	MICIOSOI	internet Explorer		_4	X D
Folders	Ilame	💠 Status 🗧	♦ Status ♦ Timestamp	Size (kb)		⊙
Skes for enaso	dud thods	•	Sun Jul 06 2003 12:33:01 ET	4.0	92	E
中级 http://www.shoreventure.com	advantages.php	•	Sun Jul 06 2003 12:33:01 ET	2.9	S	
中島 ftp://www.shoreventure.com	company php	•	Sun Jul 06 2003 12:33:01 ET	2.4	No	
oid (S)	contact php	•	Sun Jul 06 2003 12:33:01 ET	2.4	No	
	enterprise.php	•	Sun Jul 06 2003 12:33:01 ET	2.8	No	
	dud but	•	Sun Jul 06 2003 12:33:01 ET	8.8	View File Information	
wenguara	faqsave.php	•	Sun Jul 06 2003 12:33:01 ET	4.7	Edit File Information	resease .
aevadocs	footer.Intml	•	Sun Jul 06 2003 12:33:01 ET	д 6.	Wew File Statistics	FEFT
Transfer of the second	free_trial.php	•	Sun Jul 06 2003 12:33:01 ET	10.5	III View File Incidents	-
Sagual Lag	header Intml	•	Sun Jul 06 2003 12:33:01 ET	6:0	S YIEW FILE SCAIN LOG	
- (*) resources	dyd woy	•	Sun Jul 06 2003 12:33:01 ET	7.3	(R) Yiew Evidence Files	
E WE WE	dyd: by the	•	Sun Jul 06 2003 12:33:01 ET	2.0	C Activate File	
# projectfiles	management php	•	Sun Jul 06 2003 12:33:01 ET	2.5	Updete File Stanatures	
(D-Sign rate: //gcom2.com	s(nue)	•	Sun Jul 06 2003 12:33:01 ET	19.6	Delete File	
The State Manager Selon com	midrange php	•	Sun Jul 06 2003 12:33:01 ET	3.4	No	
The the west med men ed.	dyd:sweu 📗	•	Sun Jul 06 2003 12:33:01 ET	1.5	No	
	news_2002.php	•	Sun Jul 06 2003 1233:01 ET	1.9	S _O	
nostujednisudni AAAAAATONI Distri	privacy.html	•	Sun Jul 06 2003 12:33:01 ET	2.9	No O	
	products php	•	Sun Jul 06 2003 12:33:01 ET	2.6	No.	
	resources php	•	Sun Jul 06 2003 1233:01 ET	3,4	No	
	right_col.Intml	•	Sun Jul 06 2003 12:33:01 ET	3.4	No	
	dyd: cyps	•	Sun Jul 06 2003 12:33:01 ET	4.0	Se o	
	style.css	•	Sun Jul 06 2003 12:33:01 ET	2.2	ON.	F9
	terms Intml	•	Sun Jul 06 2003 12:33:01 ET	6.6	No	
	terms_of_use.html	•	Sun Jul 06 2003 12:33:01 ET	10.6	ON	
	M_2.php	•	Sun Jul 06 2003 12:33:01 ET	2.1	No	
	why nhn	•	Sun.hid OB 2003 12:33:01 FT	148	No	

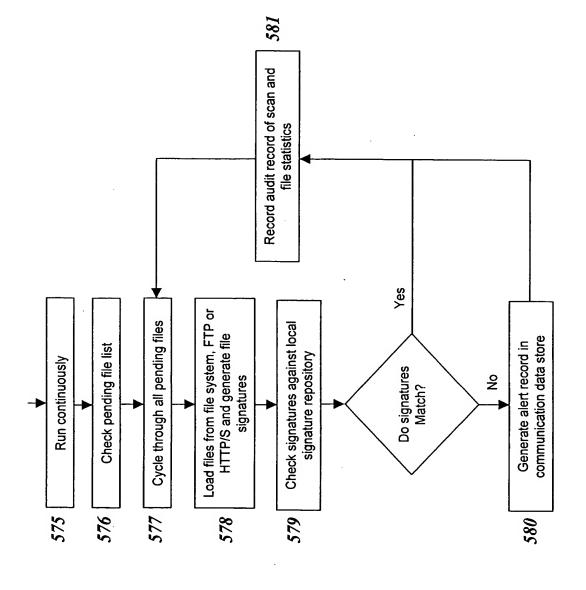
Figure 23: WebGuard OnSite Architecture



Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 24 of 30



Applicants: Matthew J. Dye, et al.
Filed: November 20, 2003 Customer No. 03000
For: REMOTE WEB SITE SECURITY SYSTEM
Docket No.: W1115/20001 Sheet 25 of 30



Filed: November 20, 2003 Customer No. 03000 For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 26 of 30

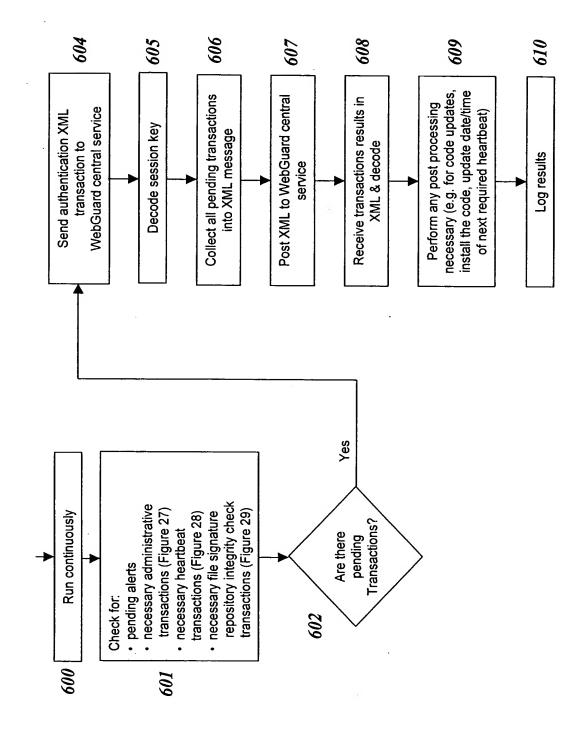
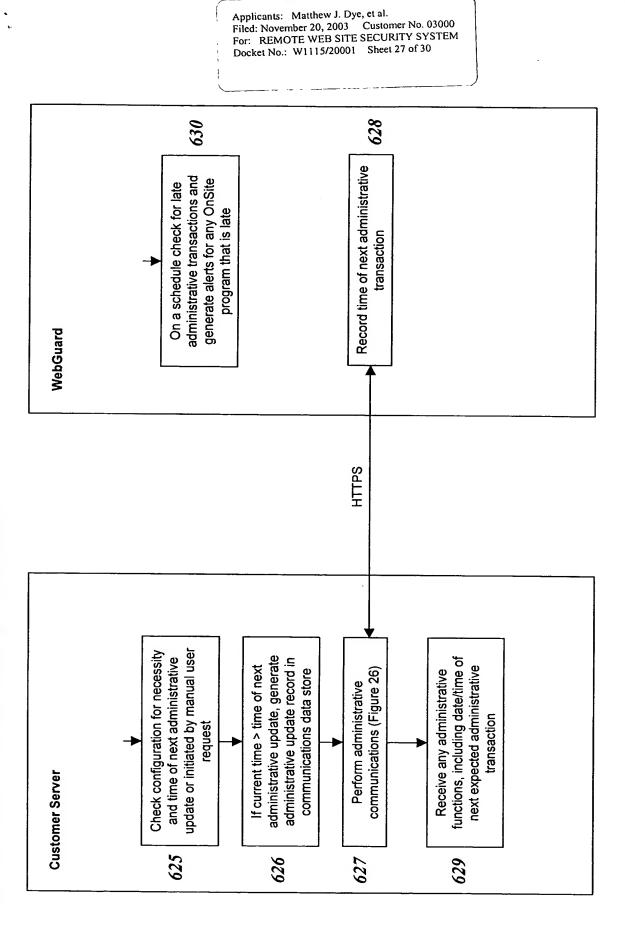
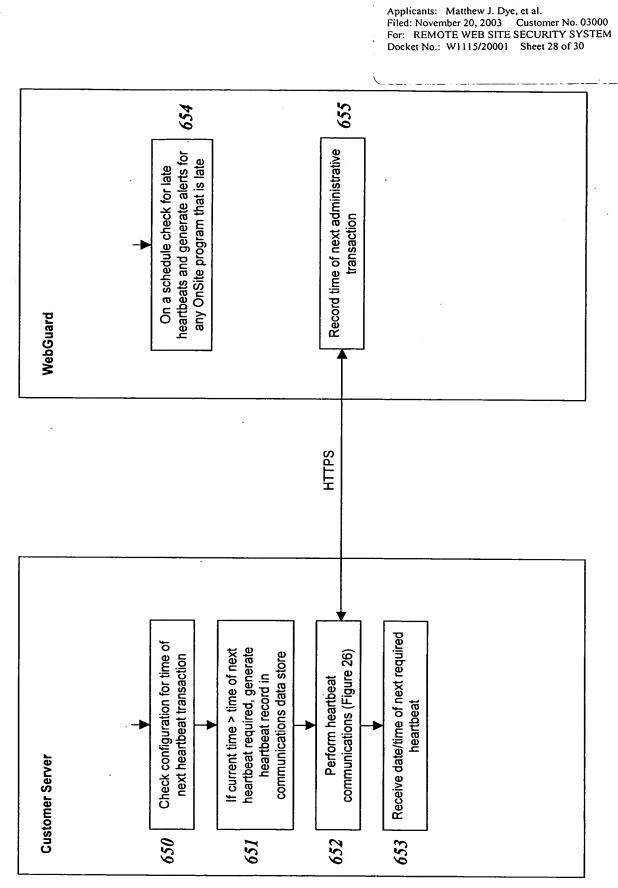


Figure 26: OnSite File Communications (on customer server)





Note: File repository integrity checks and alerts generated with WebGuard central service also count as heartbeats

Figure 29: OnSite Local File Repository Integrity Check Transactions

Applicants: Matthew J. Dye, et al.

Filed: November 20, 2003 Customer No. 03000 For: REMOTE WEB SITE SECURITY SYSTEM Docket No.: W1115/20001 Sheet 29 of 30

189 integrity transactions and generate Record time of next integrity check alerts for any OnSite program that On a schedule check for late transaction is late WebGuard HTTPS integrity check required, generate Receive date/time of next required next integrity check transaction or initiated by manual user request Check configuration for time of If current time > time of next communications data store communications (Figure 26) Generate signature of file integrity check record in Perform integrity check repository & statistics heartbeat **Customer Server** 675 089 **677**

Note: File repository integrity checks and alerts generated with WebGuard central service also count as heartbeats

Figure 30: OnSite ServerGuard